

Jan. 11; bar. 29ⁱⁿ.97; therm. 82°.

For Colombo Mean Time.

At	^h	^m	Distance from	β Ceti	29	27	55	"
	7	5		Fomalhaut ...	14	8	18	
	7	9	...	α Eridani.....	25	20	1	
	7	13	...	β Ceti	29	28	8	
	7	15	...	Fomalhaut ...	14	9	5	
	7	18	...	α Eridani.....	25	17	40	
	7	23	...	α Arietis	75	36	20	
	7	26	...	Rigel	82	13	3	
	7	29	...	α Eridani.....	25	16	10	
	7	34	...					

These coincidences were extremely difficult to obtain satisfactorily.

Longitude of place, 5^h 9^m 12^s East.

V. A communication from Professor Schumacher, containing an observation of Biela's Comet, made at Berlin by Professor Encke.

The comet was seen on Nov. 29, with great difficulty, with the large refractor of 9 French inches aperture.

At 7^h 0^m Berlin Mean Time, R. A. = 337° 2' 50".1;
Declination = +3° 31' 24".2.

VI. An extract of a letter from Professor Challis to the President, containing two observed places of Biela's Comet.

Dec.	Green. M. T.			R. A. of Comet.			N. P. D. of Comet.		
	^h	^m	^s	^h	^m	^s	^h	^m	^s
1	6	58	0	22	30	7.80	86	46	35.1
3	8	9	42	22	32	21.22	87	4	1.7

By comparison of the above places with Mr. Hind's Ephemeris, the error of the Ephemeris appears to be 21^s in defect in R. A. and 67^s in excess in N. P. D. The comet was readily found with the Northumberland telescope, though it is an extremely faint object, and only just within the power of so large an instrument; it is apparently round, without any marked condensation of light, and its apparent diameter is about 1 $\frac{1}{2}$.

VII. On the Comet of 1585, discovered by Rothmann. By J. R. Hind, Esq. Communicated by G. Bishop, Esq.

"In the present notice it is merely intended to give the results of a first approximation to the elliptical elements of this remarkable comet. MM. Laugier and Mauvais have published an ellipse of short period, which they deduced from one of Rothmann's observations and two of Tycho's, assuming the positions given by those astronomers. In my investigation I have rigorously calculated all the observations, and employed those of Oct. 19, Nov. 1, and Nov. 17 (New Style), for an approximate orbit, with the view to the more accurate application of parallax. The discussion is not yet completed; but the following orbit, computed on Gauss's general method, sufficiently proves that it is necessary to admit a short period of revolution, in order to represent the observations of Tycho and Rothmann. The identity of this comet with De Vico's first, discovered in August 1844, is extremely probable; and it yet

remains to ascertain what influence the earth may have exercised on the elements during the close proximity in 1585. This forms one object of my investigation, and I hope to communicate the results to the Society in a few weeks.

Elements of the Comet of 1585.

Perihelion passage, October, 7⁹⁹⁷⁷⁴ Uraniburg M. T. New Style.

Longitude of Perihelion..... 9° 51' 10" 7

Longitude of Ascending Node 37° 57' 51" 4

Inclination 5° 25' 5" 0

Ratio of the eccentricity to the semi-axis major, 0.8262096

Log. semi-axis major, 0.7935198

Sidereal period, 15½ years.

" J. R. HIND.

" Mr. Bishop's Observatory, Dec. 12."

VIII. On the Orbits of several Binary Stars. By J. R. Hind, Esq. Communicated by G. Bishop, Esq.

" 1. Elements of μ^2 Boötis, Σ 1938. The first micrometrical measure of this star is one by Sir W. Herschel in 1782, since which year the angle of position has changed about 60° , while the distance has been gradually diminishing. I have employed the method described by Sir John Herschel in the Memoirs of this Society. The great simplicity of this method may be conceived from the fact, that I have in more than one instance performed all the graphical constructions and calculations in less than three hours. My elements of μ^2 Boötis are as follows:—

Perihelion passage, 1849.41.

Mean Annual Motion = — 36" 102

Angle between the lines of Apsides and Nodes on the Orbit ...	102° 23'
Node	116° 54'
Eccentricity.....	0.8746 = sin 60° 59.7'
Inclination to plane of heavens	58° 11'
Semi-axis major = 3" 874	
Period, 598 yrs. 3.	

" The formulæ for the calculation of the angle of position (θ) and the distance (ϵ) are,

$$E - [3.47807] \cdot \sin E = [1.55755] (1849.41 - t)$$

$$\tan \frac{1}{2} v = [0.58730] \cdot \tan \frac{1}{2} E$$

$$\tan (\theta - 116^\circ 54') = [9.72199] \tan (v + 102^\circ 23')$$

$$\epsilon = [0.27381] \frac{\sin E}{\sin v} \cdot \frac{\cos (v + 102^\circ 23')}{\cos (\theta - 116^\circ 54')}$$

Comparison with six selected Positions.

θ obsd. Comp.—obsd. ϵ obsd. Comp.—obsd.

1782.68	357° 14'	+ 0° 22'		
1802.86	346° 14'	+ 0° 49"	"	- 0° 11"
1823.41	333° 42'	- 2° 12'	1° 65	+ 0° 09
1826.78	327° 0'	+ 1° 2'	1° 37	+ 0° 11
1833.38	319° 47'	+ 0° 1'	1° 15	- 0° 09
1842.40	300° 58'	+ 0° 2'	0° 85	- 0° 09